



> SKED 3.2 Overview Presentation



November
2007



Reasons for SKED 3.2

- > Data model moving towards ERP requirements
- > Continue to tackle the “configuration problem”
- > Changing requirements from an increased client base (SEABEE, SPECWAR, etc.)
- > Requested enhancements from Fleet feedback
 - *Component-based MRC line-outs and customization*
 - *Increased automation/workflow*
 - *Increased support for situational maintenance*
 - *Increased performance & reliability*
 - *Ship-wide LOEP management*



Goals of SKED 3.2

- > Increase quantity and quality of PMS information available to the user
- > Increase schedule accuracy
- > Reduce the man power required for maintaining PMS schedules
- > Reduce the amount of excessively scheduled PMS
- > Increase accountability and improved workflow
- > Automation of schedule validation
- > Increase performance and reliability
- > Shore-based data analysis capabilities



Major changes in SKED 3.2

- > Support for scheduling rule changes
- > Replacing the legacy Cycle, Quarterly, and Weekly schedules
- > Adding new accountability features, workflow, and concepts
- > Integrating e-business processes
- > Improving the PMS performance metrics
- > Incorporating greater spot check support
- > Automation of situational check scheduling
- > Provision for class maintenance plan

The logo for SKED 3.2. The word "SKED" is in a large, bold, sans-serif font, with a gradient from light blue to dark blue. The ".2" is smaller and positioned to the right of "SKED".

SKED 3.2

Scheduling Rule Changes



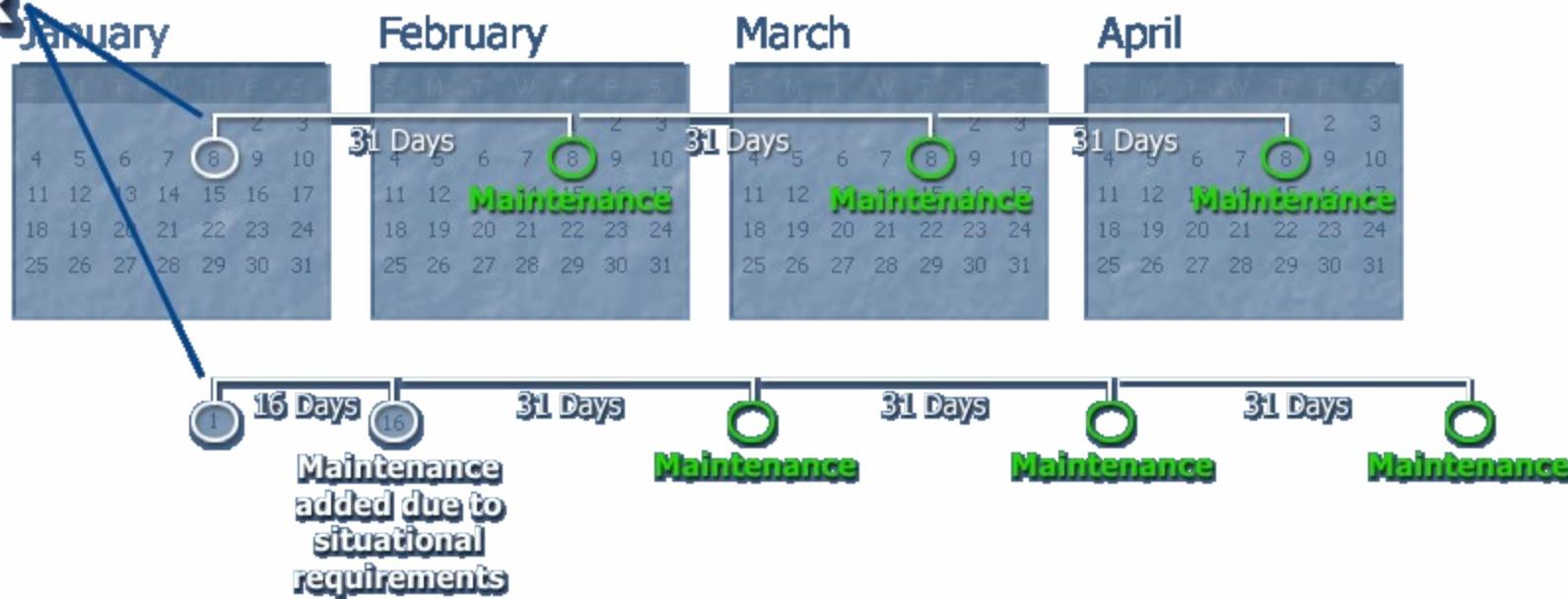
True Interval Scheduling

- > Periodic maintenance will be scheduled based on their “last accomplishment” rather than a predetermined “finalized” schedule
- > Eliminates the rigidity of the old Cycle Schedule
- > Periodic maintenance will be scheduled precisely based on a day-centric interval
- > Rescheduled or added maintenance will result in a rescheduling of future checks to retain proper scheduling interval
- > Defines precise minimum and maximum scheduling ranges to eliminate interpretations of scheduling rules
- > Allows for accurate forecasting of large periodicity maintenance requirements not on the current schedules (24M or 120M) based on last accomplishment
- > Will reduce the number of times that periodic maintenance with situational requirements (M-1R) would need to be accomplished
- > Periodic checks, when out-of-periodicity, are no longer “lost” or “deferred” as they are in the current system, rather the maintenance is rescheduled continually until it is completed (PMS alerts provide documentation when it is out of periodicity)

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Interval Scheduling Concept

M-1R

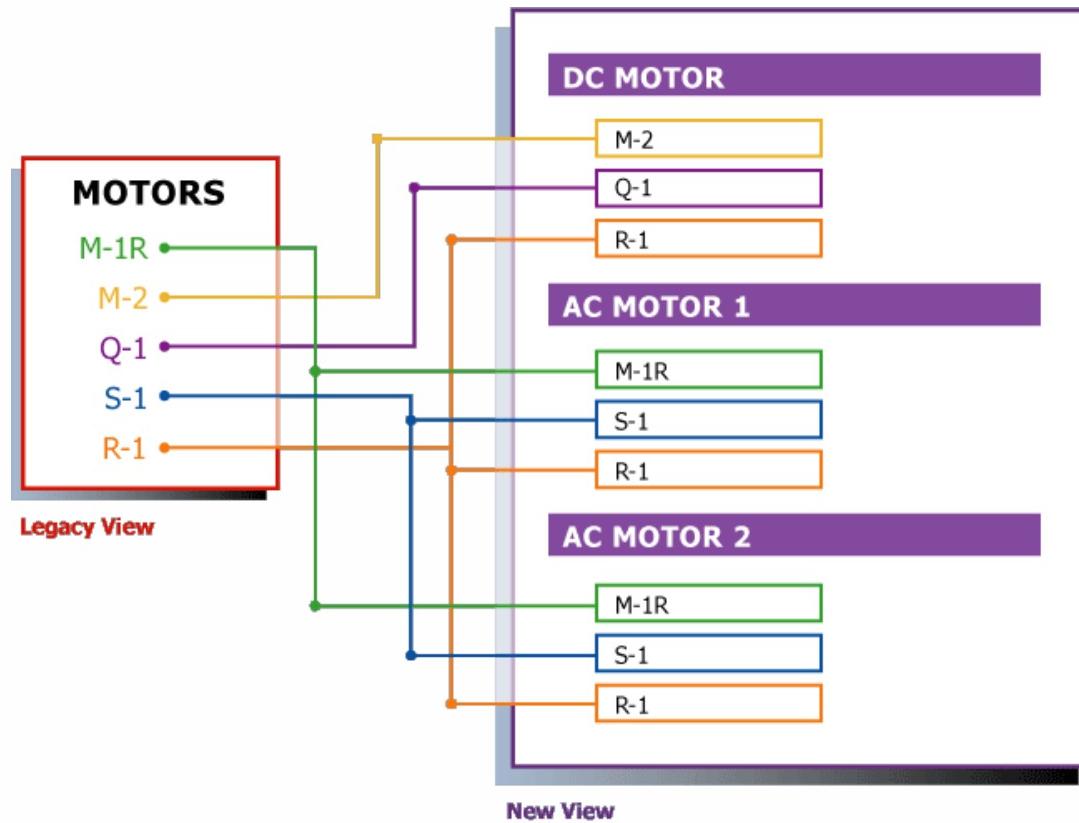




Equipment-based Maintenance

- > Each maintenance worthy system, sub-system, or equipment will have a customized maintenance schedule
- > Removes the EGL concept to track individual MRC accomplishments
 - *True Interval Scheduling allows former EGLs to be scheduled together*
 - *“Group” labels can still relate equipment together on the schedules*
- > When equipment is transferred or goes off-ship, the maintenance schedule can be transferred with it
- > Allows for more accurate accounting of required man hours and material requirements
- > Will help satisfy the additional requirements requested by the RMCs, SEABEE, and SPECWAR units
- > This maintenance model is more in tune with the ERP requirements for maintenance.

Equipment-based Concept





Situational Check Improvements

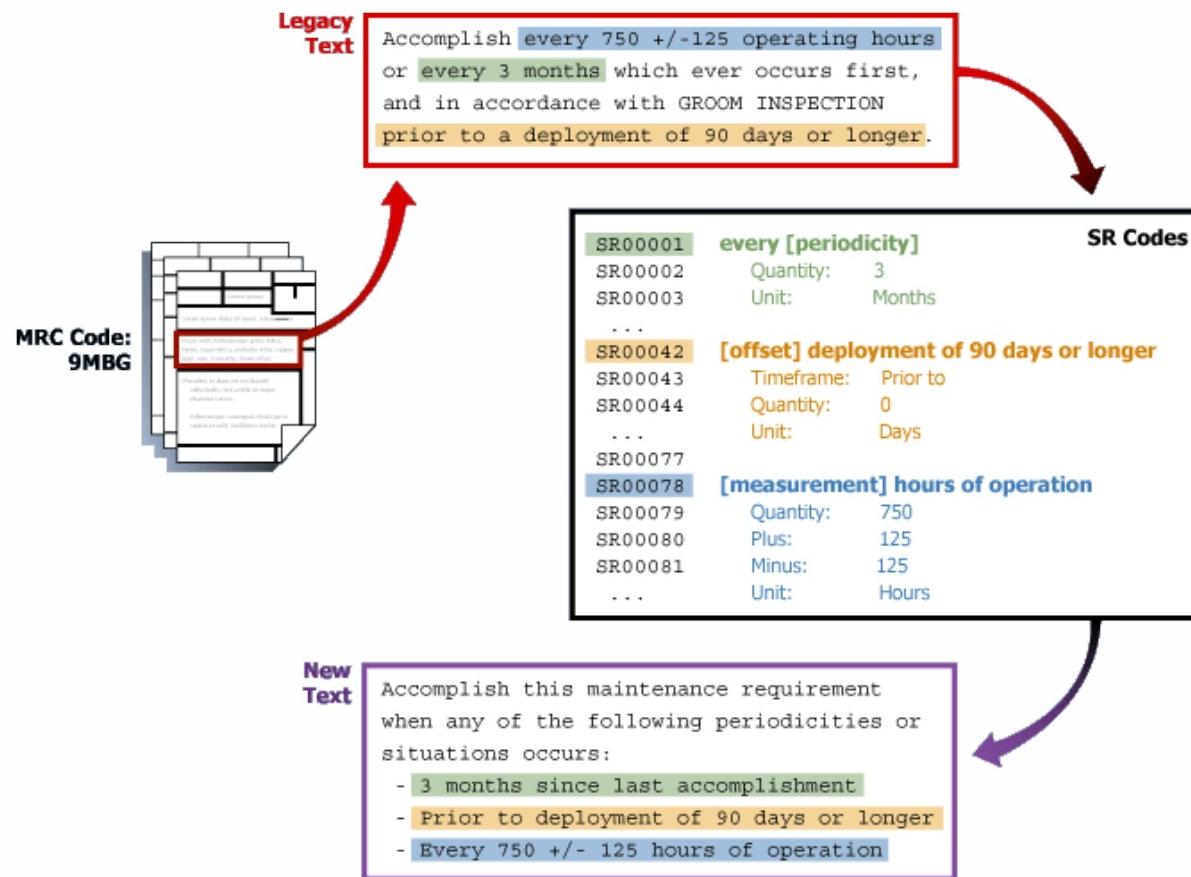
- > A process is underway to standardize the list of scheduling aids for which situational PMS is scheduled (list of SR Codes)
- > There are three major benefits to standardizing the situational requirements:
 - *Each situation will be described consistently across multiple MRCs (maintained by multiple ISEAs)*
 - *SKED can determine the number of situations, based on the ship schedules, that are actually applicable to the ship or a given workcenter (smarter R-Check reports)*
 - *SKED can determine when two or more MRCs share the same situational requirement*
- > Due to this standardization effort, SKED will be able to automatically generate a list of global and local situational events and link the proper MRCs to them when a Force Revision is applied
- > For Metered events (“after X engine run hours”) the measurements will automatically be created and linked to the event
- > Manual scheduling of situational checks (R-1) will still be possible

Standardization of Situational Events

- > Five Types of Situational Events:
 - *Global States* ("at sea", "in port")
 - *Global Triggers* ("getting underway", "rough seas")
 - *Local States* ("in use")
 - *Local Triggers* ("lay-up", "start-up", "each use")
 - *Local Measurements* ("after __ engine run hours", "__ launches")
- > When the situational requirements are defined in a specific MRC, extra parameter data may be provided by the author and used by SKED
 - *Offset Data*: "**24 hours prior to** getting underway"
 - *Measurement Data*: "After **250 +/- 50** engine run hours"
 - *Periodicity*: "At sea **accomplish monthly**"
- > SKED can use this parameter data to:
 - *Automatically schedule state-based situations (R-1W)*
 - *Apply the schedule offsets to triggers*
 - *Highlight to the supervisor where they stand with their measurement-based situations.*

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Situational Check Improvements





Scheduling Rule Changes

Change Summary

- > True Interval scheduling is required to meet the Navy's needs. Due to this scheduling technique, schedules will be dynamic and will vary based on accomplishment.
- > Removal of traditional, abstract "schedule rows" and require equipment-based schedules.
- > Global and local events will be built automatically by Situational Requirement codes (SR Codes) imbedded in the MRCs that appear on workcenter schedules. These events will still need to be triggered by the 3MC (global) and workcenter supervisor (local).
- > Situational state events will add/remove checks to/from the workcenter schedules dynamically when the state is changed in the event manager. This includes "underway/at sea".
- > Periodicity-based checks are no longer "lost" or "deferred", rather they are rescheduled until they are accomplished. Situational checks may be marked as "not required during this current situation" and "not completed".



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Replacing the Legacy Schedules



Replacing the Legacy Schedules

- > Legacy Cycle, Quarterly, and Weekly schedules based on the “Overhaul” ideology which is no longer accurate
- > With the removal of overhauls, persistent schedules need to exist for PMS
- > New schedules are being developed to support the revised scheduling rules
- > New displays are being designed around specific functional areas and are to provide more information about the maintenance that needs to be performed, with a minimal amount of effort.



New Schedule Displays

- > Displays based on functional areas
 - *Schedule Display*
 - *Review Display*
 - *Forecasting Display*
 - *Situational Maintenance Display*
- > Detail screens tie displays together
 - *MIP Details*
 - *MRC Details*
 - *Equipment Details*
 - *Check Details*

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Legacy Schedule Displays (what maintenance needs to be accomplished?)

The screenshot displays two windows of the SKED 3.2 software. The top window shows a detailed list of maintenance tasks with columns for Date, MIP, Component, MRC, Man Hours, and Crew. A yellow row highlights an 'ACCESS TRUNK (3-326-1-L)' task. The bottom window shows a weekly calendar view for Week 7 (08/16/2004) with columns for Component, Maintenance Responsibility, and days of the week (Mon through Sat-Sun). A green box highlights the 'W-1(# P-122)' entry for the AN/SLQ-32(V)2 32A(V)2 Countermeasures Set 4721 component.

Table Data (Top Window):

Date	MIP	Component	MRC	Man Hours	Crew
8/16/2004	4721/002	AN/SLQ-32(V)2 32A(V)2 Countermeas	W-1	1.0	CTT3 Ammunition
8/16/2004	4721/002	AN/SLQ-32(V)2 32A(V)2 Countermeas	W-1	.5	CTT3 Ammunition
8/19/2004	6341/001	ACCESS TRUNK (3-326-1-L)	S-1	/A	CTT3 Binning
8/23/2004	4741/001	Chaff Launching System Mk 36 Mod 18 (S	M-7R	1.0	CTT3 Reeve
8/23/2004	4721/002	AN/SLQ-32(V)2 32A(V)2 Countermeasun	R-1	1.0	CTT3 Ammunition

Table Data (Bottom Window):

Component	Maintenance Responsibility	Mon	Tues	Wed	Thurs	Fri	Sat-Sun
AN/SLQ-32(V)2 32A(V)2 Countermeasures Set 4721	CTT3 Ammunition	W-1(# P-122)					ZW-2, M-4 Z4B-1 R-# P-4#47+1 P-9#201-3 47+1/001
AN/ULQ-16(V)1, 2	CTT3 Binning						Q-1, Q-

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New Schedule Displays (what maintenance needs to be accomplished?)

List by Week							
	Qty	Date	MIP	Periodicity	Maintenance Item	Serial #	Location
		Week Of: 10/1/2007			10/1/2007 6512/002 24M-1 DISHWASHER	980283	02-158-4-Q ENFN King
					1. Test Dishwashing Machine Steam Booster Heater Relief Valve.		
					10/1/2007 6512/002 24M-1 DISHWASHER	990445	1-191-0-Q ENFN King
					1. Test Dishwashing Machine Steam Booster Heater Relief Valve.		
					10/1/2007 6517/006 2W-1 GARBAGE DISPOSAL	UNKNOWN	1-238-1-Q ENFN King
					1. Test Feed Chute Safety Interlock.		
					10/1/2007 5315/008 M-2R PLANT NO 1A, REVERSE OSMOSIS	UNKNOWN	4-174-0-E ENFR Wanam...
					1. Test Activated Carbon Filters.		
					2. Replace Activated Carbon Filters.		
					10/1/2007 5315/008 R-7 Desalination Plant, Reverse Osmosi...		ENFR Wanam...
					1. Flush 12,000 GPD Reverse Osmosis Module.		
					10/3/2007 6552/002 Q-3 LAUNDRY PRESS	UNKNOWN	2-414-0-Q ENFR Wanam...
					1. Test Safety Control Bar and Two Hand Control System.		
					10/3/2007 5161/008 W-3 COOLER, UNIT NO 4, CLR04	97-25725	2-238-1-A EN2 Klow
					1. Inspect Gravity Coils for Frost Buildup.		
					2. Inspect Fan Coil Unit(s) for Frost or Ice Buildup.		
					10/3/2007 6554/007 M-2 WASHER EXTRACTOR	1441P99450...	2-414-0-Q FN Hooper
					1. Test Safety Devices.		
	2				10/4/2007 5161/008 W-3 Various	97-25725	2-220-3-A EN2 Klow
					1. Inspect Gravity Coils for Frost Buildup.		
					2. Inspect Fan Coil Unit(s) for Frost or Ice Buildup.		
					10/5/2007 5140/016 M-4 AIR CONDITIONING PLANT NO 2	GLGM534370	4-220-0-E EN2 Klow
					1. Review Refrigerant Usage Log.		
					10/5/2007 5315/008 M-1R Desalination Plant, Reverse Osmosi...		ENFR Wanam...
					1. Inspect High-Pressure Pump Plunger Packing and Crosshead Oil Seals for Leakage.		
					10/5/2007 6552/002 M-10 LAUNDRY PRESS	UNKNOWN	2-414-0-Q ENFR Wanam...
					1. Inspect Air Line Lubricator Oil Level		
					10/5/2007 6554/007 M-4 WASHER EXTRACTOR	1441P99450...	2-414-0-Q FN Hooper
					1. Inspect Oil Level in Air Lubricator.		
					2. Drain Sump on Air Filter.		
					3. Inspect Unit for Air Leaks.		
					10/6/2007 5161/008 W-3 COOLER, UNIT NO 3, CLR03	97-25725	2-238-1-A EN2 Klow

297 Row(s) Displayed

EA01

fullerjv

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Legacy Review Displays (is maintenance being properly accomplished?)

Quarterly Schedule

Component	13	14	15	16
Component	13	14	15	16
AN/SLQ-32(V)2 32A(V)2 Countermeasures Set 4721	S-2R, S-4R# A-1#	S-6	S-2R, S-4R# 24M-2R#(3, 19)	S-6, 24M-1R#(8, 16, 24)
AN/ULQ-16(V)1, 2 Countermeasures Receiving Set 4721	S-2, S-3	8/2	8/9	8/16
AN/SLA-10B Blanker-Video Mixer Group 4722	24M-1R(1, 2), S-60, R-1	2W-2, M-40,	R-1	2W-2, M-7, R-1
Passive Countermeasures System (PCMS) 4722				S-60, R-1
Chaff Launching System Mk 36 Mod 18 (SRRQOC) 4741	S-1R, S-4R#			M-40, R-1

Weekly Schedule

Component	Maintenance Responsibility	Mon	Tues	Wed	Thurs
AN/SLQ-32(V)2 32A(V)2 Countermeasures Set 4721	CTT3 Ammon	W-16#, R-100, 2W-2	S-6()		
AN/ULQ-16(V)1, 2 Countermeasures Receiving Set 4721	CTT3 Binning		Q-1		
AN/SLA-10B Blanker-Video Mixer Group 4722	CTT3 Ewart				
Passive Countermeasures System (PCMS) 4722	CTT3 Reeves				Q-1

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New Review Displays

(is maintenance being properly accomplished on time?)

The screenshot shows the SKED 3.2 software interface. On the left is a tree view of workcenter structures, and on the right is a detailed table of tasks.

Tree View (Left):

- 1631/004
- 2560/006
 - PUMP UNIT NO 1, SEAWATER CC
 - PUMP UNIT NO 1, SEAWATER
 - 35 B5QG N [S-3]
 - 35 B5QF N [A-2]
 - 35 S47R U [U-1]
 - B9 B5QI N [LU-1]
 - NA [LU-2]
 - 73 B5QL N [PM-2]
 - NA [SU-1]
 - B9 B5QM N [SU-2]
 - B9 B5QN N [OT-1]
 - PUMP UNIT NO 3, SEAWATER CC
 - PUMP UNIT NO 5, CENTRALIZED
 - 4361/028
 - 5000/005
 - 5000/007
 - 5000/009
 - 5000/015
 - 5140/016
 - 5161/008
 - 5201/007
 - 5210/016
 - 5241/005
 - 5291/001
 - 5315/008
 - 5315/009
 - 5331/002
 - 5331/025
 - 5600/016
 - 5721/016
 - 5721/051
 - 5811/020
 - 5821/016
 - 5831/030
 - 5833/201

		MRC Code	Periodicity	Last Completed	Interval	Range
		B5QG	S-3	3/22/2007	182 days	Every 121 to 243 days
		B5QF	A-2	3/10/2007	364 days	Every 243 to 485 days
		S47R	U-1	8/22/2003		
		B5QJ	LU-1	8/28/2003		
		NA	LU-2	8/24/2003		
		B5QL	PM-2	9/2/2003		
		NA	SU-1	8/27/2003		
		B5QM	SU-2	9/12/2003		
		B5QN	OT-1	8/27/2003		

TASKS WORKCENTER PMS VIEWER FBR SPMIG MJC SPOT CHECKS TRAINING LOEP EVENTS REPORTS ADMIN

7 Row(s) Displayed

EA01

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Legacy Forecasting Displays

(how is the maintenance distributed in the future?)

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New Forecasting Displays (how is the maintenance distributed in the future?)

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File Workcenter Help

WORKCENTER Schedule Review Forecast Situational Journal PMS Docs

VIEW BY ITEM Quarter: 3-06 Checks Man Hours Elapsed Time

MIP	Component	Serial #	Location	Total	Every Week	7/3/2006	7/10/2006	7/17/2006
		Total		259.0	2.2	21.5	4.4	72.1
4688/022	BATHYTHERMOMOGRAPH LAUNCHER	982309	2-442-6-Q	0.0				
4688/022	DISPLAY STATION	CA010	1-126-0-C	0.9				0.7
4688/022	CONSOLE, UNDERSEA WARFARE	NGP1-0306	2-53-1-C	0.5				
5000/005	Torpedo Tube Charging Panel H...	AHP-V-153	01-Lvl Midship W...	0.2				
5000/005	Auto On Control Pressure Switc...	AHP-V-29	01-205-0-Q Palle...	0.2				
5000/005	Auto Off Control Pressure Switc...	AHP-V-28	01-205-0-Q Palle...	0.2				
5000/005	Pressure Gage CO	AHP-V-30	01-205-0-Q Palle...	0.2				
5000/005	HP Air Dhydrator Outlet COV	AHP-V-6(01-2...	01-205-0-Q Palle...	0.2				
5000/005	Air Flask COV	AHP-V-24	01-205-0-Q Palle...	0.2				
5000/005	Air Flask Drain Throttle	AHP-V-27	01-205-0-Q Palle...	0.2				
5000/005	Recirculation Valve	2-53-1	2-53-1-C	0.6				
5000/005	Recirculation Return	2-55-1	2-53-1-C	0.6				
5000/005	Low Pressure Air	ALP-V-725	1-304-2-M (Torp...	0.6				
5000/005	Recirculation Return	2-55-1	2-53-1-C (CSER 1)	0.6				
5000/005	Recirculation	2-53-1	2-53-1-C (CSER 1)	0.6				
5000/009	COMPUTER SET, UNIT 501	C1189	2-53-1-C	0.2		0.2		
5000/009	MAGNETIC DISK RECORDER RE...	A302	2-53-1-C	0.2		0.2		
5000/009	CONSOLE, UNDERSEA WARFARE	NGP1-0306	2-53-1-C	0.2		0.2		
4361/051	LIQUID LEVEL, FLOODING ALARM	UNK	1/2-28-0-Q	1.6				
4361/051	LIQUID LEVEL FLOODING ALARM	UNK	3-18-0-Q	1.6				
4361/051	LIQUID LEVEL, FLOODING ALARM		2-450-1-Q	1.6				
4361/051	LIQUID LEVEL, FLOODING ALARM		1-304-2-M	1.6				
5221/012	Sprinkler Heads	None	1-318-2-M Fixed...	1.0				
5221/012	Sprinkler Heads	None	1-304-2-M Torpe...	1.0				
5221/012	TM&R Magazine Sprinkler Group	None	1-300-01-L	10.8			1.0	
5510/032	COMPRESSOR, HP AIR, WEAPO...	H030	01-205-0-Q	1.7				
7000/X02	TORPEDO MISSILE AND ROCKE...	NONE	1-304-2-M	19.2	0.2	1.4	1.4	1.4
7222/003	Blank			1.5		1.5		
7222/003	HOIST CHAIN HOOK SPNSN TY...		01-268-1-A	1.5		1.5		
			01-268-2-WF1	0.5				

51 Row(s) Displayed

Workcenter: CA03

Quarter: 3-06

Forecast Display

blackeh

TASKS WORKCENTER PMS VIEWER FBR SPMIG MJC SPOT CHECKS TRAINING LOEP EVENTS REPORTS ADMIN

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New Forecasting Displays (how is the maintenance distributed in the future?)

The screenshot shows the SKED 3.2 software interface with a title bar "SKED 3.2" and a menu bar "File Workcenter Help". The main window displays a table titled "Man Hours" under the "Forecast" tab. The table has columns for "Crew Member" and dates from "7/3/2006" to "8/14/2006". The data includes totals for each day and specific entries for crew members like TM1(SW) Hardwick, TM2 Parmentier, STG3 Perkins, STG2 Williams, and TM3 McLamb.

Crew Member	Total	Every Week	7/3/2006	7/10/2006	7/17/2006	7/24/2006	7/31/2006	8/7/2006	8/14/2006
Total	301.0	1.2	47.5	4.4	72.1	9.9	3.9	25.7	35.5
TM1(SW) Hardwick	12.8			1.0		1.0		1.0	
TM2 Parmentier	48.3	0.2	14.4	1.4	1.4	1.9	1.4	11.8	1.4
STG3 Perkins	46.5		17.0			5.0		4.0	
STG2 Williams	2.0		0.6		0.7		0.5		0.1
TM3 McLamb	191.4	1.0	15.5	2.0	70.0	2.0	2.0	8.9	34.0

At the bottom, there is a navigation bar with tabs: TASKS, WORKCENTER (highlighted in red), PMS VIEWER, FBR, SPMIG, MJC, SPOT CHECKS, TRAINING, LOEP, EVENTS, REPORTS, and ADMIN. Status bars at the bottom show "6 Row(s) Displayed", "Workcenter: CA03", "Quarter: 3-06", "Forecast Display", and "blackeh".

SKED 3.2

Detail Screens

(Tying all the information together!)

Check Details

W-3 scheduled on 10/3/2007

General SPMIG MIP Document MRC Document

Check Information

Scheduled Date ▶ 10/3/2007	Crew Member ▶ EN2 Klow
Periodicity ▶ W-3	Elapsed Time ▶ 0.1
MRC ▶ C6 C3JZ N	Number of Personnel ▶ 1
MIP ▶ 5161/008	Serial Number ▶ 97-25725
Man Hours ▶ 0.1	Location ▶ 2-238-1-A
Maintenance Group ▶ COOLER, UNIT NO 4, CLR04	Equipment Note ▶
Maintenance Item ▶ COOLER, UNIT NO 4, CLR04	

Note

OMMS Equipment Information

Nomenclature ▶ COOLER, UNIT NO 4, CLR04	Ship RIN ▶ 021065
Location ▶ 2-238-1-A	CDM RIN ▶ 7D1DM
Serial Number ▶ 97-25725	Location Description ▶
Primary Mip ▶ 5161/008	APL ▶ 326040620
FIN ▶	HSC ▶ 51611B7N
EOC ▶	Functional Description ▶ COOLER, UNIT NO 4, CLR04



Replacing the Legacy Schedules

Change Summary

- > Replacing the traditional schedules with new displays is required to increase automation and reduce the man power required to maintain, execute, and inspect PMS schedules
- > The four primary purposes for PMS schedules are:
 - *Scheduling: What maintenance do I need to perform and when?*
 - *Review: Is all of the correct maintenance being performed on time and on the proper equipment?*
 - *Forecasting: What maintenance do we have coming up over a specified period of time?*
 - *Situational Management: Why situations require PMS to be performed on my equipment? And what MRCs are required for those situations?*
- > Appropriate portions of the 4790 and JFMM will need to be rewritten to conform to the new PMS schedule types
- > Due to the removal of the traditional “quarterly” schedules, the “at sea” and “in port” global state events will replace the underway markings that appeared on that schedule.



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New Accountability Features



New Accountability Features

- > Accountability features are designed to help administer, review, and provide workflow
- > The user's SKED signature is attached to many of the PMS schedule changes for tracking purposes
- > A history log is maintained separate from the workcenter data to track backups/restores and other major events
- > Alerts are generated when abnormal conditions arise, and must be acknowledged by the Division Officer (or higher)
- > All acknowledgements have the SKED signature and date attached to them



PMS Task Manager

“My Tasks”

- > This is the initial display when a user logs into SKED and is customized based on their user category and where they fit in the chain-of-command
- > Organizes all of the action items that require the attention of the user who is logged in:
 - *PMS Checks that are assigned for the next week*
 - *PMS Alerts that need to be acknowledged*
 - *Technical Feedback Reports requiring signature*
 - *Force Revisions that need to be started or approved*
 - *Weekly close-outs that need to be approved*
- > The action items section is linked with the rest of the application, so that clicking on an item will take you directly to the part of the program that requires action (click on a TFBR that requires a signature and it appears to review and sign)
- > Another section provides information that is relevant to the user:
 - *Notification of workcenters that have sub-standard PMS performance metrics*
 - *Global events that have been triggered that relate to one or more MRCs that are in the workcenter*
 - *Notification of workcenters that have not started and/or applied their force revision by the due date*

PMS Alerts

- > A PMS Alert is generated when a week is closed out on the schedule and by doing so results in an MRC being out-of-periodicity (violation of PMS scheduling rules)
- > Alerts are also generated when a situational check is marked as “not applicable” or “not completed”
- > Replaces part of the “Flip Page” functionality of the legacy schedules
- > PMS Alerts contain multiple pieces of information:
 - *The MIP/MRC/Equipment that generated the alert*
 - *The date the alert was generated*
 - *The date the check was scheduled*
 - *The signature of the user that closed out the week which generated the alert*
 - *The reason why the PMS was not accomplished or is overdue (entered by the supervisor)*
 - *The signature of the Division Officer who acknowledged the PMS Alert*
 - *The date of the acknowledgement*
- > A PMS Alert represents a week where the MRC was out of periodicity or documents the reason why a situational MRC was not completed
- > If the MRC is not accomplished the following week, another PMS Alert is generated when that week is closed out (the same reason will be prefilled for simplicity)
- > PMS Alerts appear on the DivO’s Task Manager for action
 - *If an Alert has not been acknowledged in a certain amount of time, it could bubble up to the Department Head level or higher*



“Close out” of Weekly Schedules

- > Since quarters are no longer pre-approved and finalized, a mechanism for archiving the PMS schedules needed to be developed
- > By closing out the weekly schedules, the PMS data becomes a part of the ship's record sooner rather than later
- > Closing out the weekly schedules also allows for the PMS Alert concept, since checks prior to a closed out week are read-only and cannot be updated at a later date
- > When a week is closed, any unmarked checks in that week are automatically rescheduled to the following week. If that makes them out-of-periodicity, a PMS Alert is generated and the supervisor has to provide a reason
- > When a supervisor prepares a week for closeout, the PMS Alerts are generated and reasons are annotated. The Division Officer will then receive a task in the Task Manager to close out the week and acknowledge the PMS Alerts
- > Business rules need to be established to determine how far back a workcenter is allowed to have open weeks (two week lag time perhaps?)
- > If a workcenter has not closed out their weeks in the designated time, it is reflected in the SKED Administrative Rating and other notifications appear up the chain of command in the Task Manager
- > Closeouts are date/time stamped and signatures are recorded to assist in verification

Workcenter Journal

- > The Workcenter Journal is used to document major changes/events to the workcenter for auditing purposes
- > Items that are tracked in the journal include:
 - *When a Force Revision is started*
 - *Force Revision is finalized*
 - *A workcenter is created*
 - *The workcenter is backed up*
 - *The workcenter is restored from backup (journal stored separately from the workcenter and backup files)*
 - *Any revision (ACN, DIT, Admin, etc) is started and approved*
 - *Feedback report was generated*
 - *Week was closed-out*
- > Each journal entry will have the following information:
 - *Type of action that was performed*
 - *Date/Time the action occurred*
 - *SKED user's signature for the action*
 - *Current network login used at the terminal (NT user name)*
 - *Name of the machine where the action took place*
 - *Note entered by the user (Restoring from backup or performing and administrative revision will require a reason)*



New Accountability Features

Change Summary

- > These features are being added to provide the tools to better monitor the condition of the workcenter schedules and provide workflow to handle approvals/acknowledgements
- > Division Officers and Department Heads will need to be more involved in the SKED application to manage the proper workflow
- > It is going to be paramount for the users up the chain-of-command to maintain password integrity. Allowing subordinates to use their account for approvals will still apply their digital signature to those events. Permissions can be handed down to other user accounts to delegate their authority if needed.
- > PMS Alerts provide an accountability tool for out-of-periodicity MRCs and replace the “lost check” concept from the legacy schedules
- > Date/time stamp and signatures are applied to most events in SKED for tracking who is performing these actions (and in the case of the Journal, from where they are performing it as well)

The logo for SKED 3.2. The word "SKED" is in a large, bold, sans-serif font, with a gradient from light blue to dark grey. The ".2" is smaller and positioned to the right of "SKED".

SKED 3.2

Integrating e-Business Processes



Review-and-Omit

- > MRCs can be customized (procedure step line outs) for the equipment to which they are assigned
- > Line-outs are approved by the department head before they can be printed
- > Location and equipment-specific information will be printed on the MRC (if the equipment is part of a group, the equipment list page is referenced and printed as part of the MRC)
- > MIP pages are lined out automatically based on the MRCs that are actually on the PMS schedules
- > Users may not add, change, or remove wording from the MRC procedures
- > Process was developed as an e-business initiative

SKED 3.2

Review and Omit

SKED 3.2

File View Workcenter Help

WORKCENTER Schedule Review Forecast Situational IEM Journal PMS Documents

not use the ICMP section of this Maintenance Index Page for scheduling Planned Maintenance requirements for ship's force accomplishment.

** For scheduling purposes only; no MRC is provided.
Mandatory scheduling required.

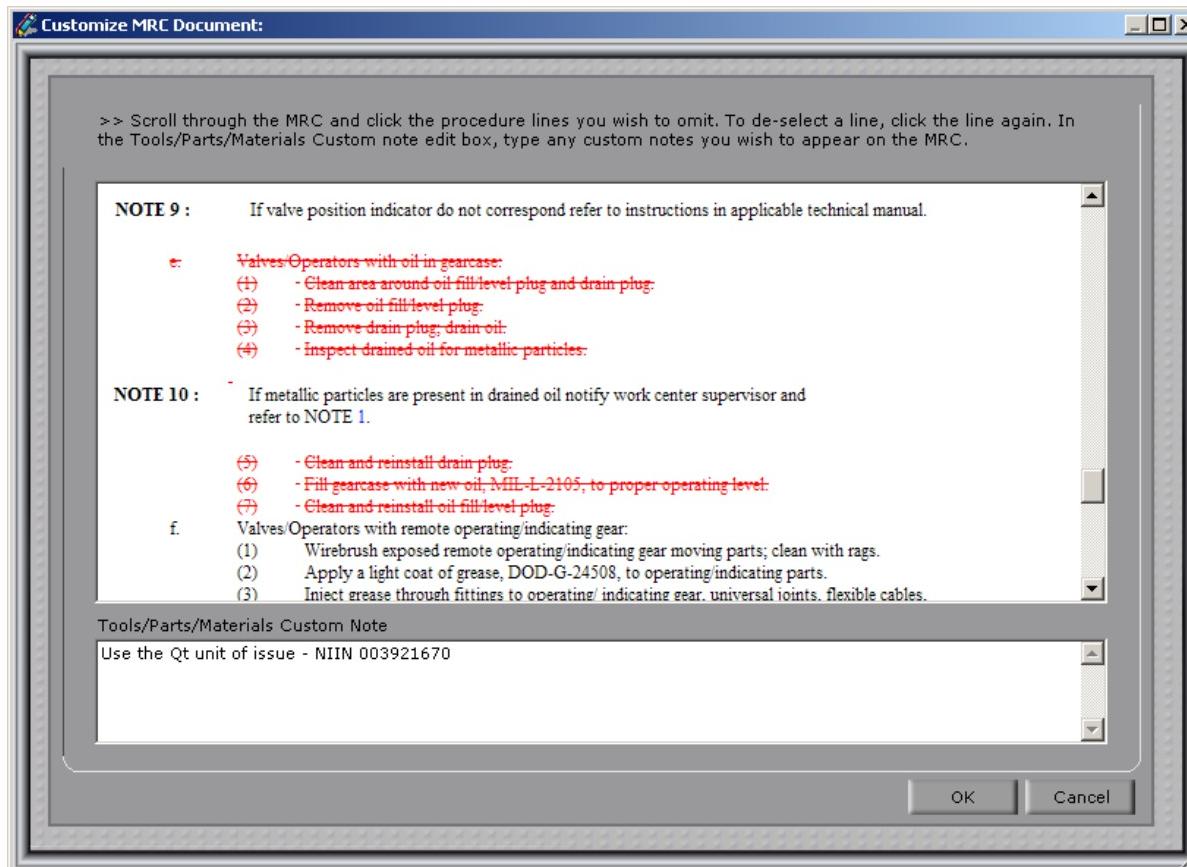
OTHER	MRC NO.	MAINTENANCE REQUIREMENT DESCRIPTION	PERIODICITY CODE	RATES	MAN HRS	RELATED MAINT
	56 C2LXN	+ Clean and Inspect Seawater Duplex Strainer.	M-1	EN/GSM/MT/MMB	±.5	None
	55 B5QE/N	+ Lubricate Central Seawater Cooling Pump Flexible Coupling.	S-1	GSM/MMB	0.5	None
	55 B5QG/N	1. Lubricate Central Seawater Cooling Pump Bearings.	S-3	GSM/MMB	0.5	None
	55 B5QH/N	+ Lubricate Central Seawater Cooling Pump Motor Bearings.	A-1	GSE3	0.5	None
	55 B5QF/N	1. Inspect and Lubricate Valves and Valve Operators.	A-2	GSM3 GSE3	0.5 0.5	None
	55 C2QH/N	+ Lift Relief Valve by Hand.	24M-1	EN/GSMB	0.1	None
	55 C2CJ/N	+ Remove and Deliver Relief Valves to Repair Activity.	60M-1	EN/GSMB PN	±.0 ±.0	None
UNSCHEDULED MAINTENANCE						
	35 S47R/U	1. Clean and Inspect Simplex Strainer.	U-1	EN/MMB	0.4	None

TASKS WORKCENTER PMS VIEWER FBR SPMIG MJC SPOT CHECKS TRAINING LOEP EVENTS REPORTS ADMIN

Viewing PMS Document (2560/006-47) EA01 fullerjv

SKED 3.2

Review and Omit



Review and Omit **Change Summary**

- > Line-outs will be made by the supervisor for each piece of equipment/equipment group
- > Approvals must be made prior to printing the customized MRC
- > Approvals are made at the department head level
- > When an MRC changes, the line-outs need to be re-applied and re-approved. (line-outs are tied to MRC date codes)
- > When reapplying line-outs, the old MRC with the line-outs will be available for assistance



SKED
3.2

New PMS Performance Metrics

New PMS Performance Metrics

- > Need replacements for the RAR, ACF, and PPR reports due to schedule changes and new business rules
- > Issues with the legacy metrics:
 - *Current RAR measures the number of times a check was on the schedule versus the number of times it was accomplished, does not take into account if it was done on time or if the correct number were on the schedule*
 - *Due to periodicity variances, the number of MRCs scheduled (monthlies for example) could inflate the number of checks and “wash out” the score of “lost” checks for higher periodicity MRCs*
 - *By not allowing periodic checks to be “lost”, the current RAR formula would not work with the new business rules*
 - All periodic checks on the schedule will be marked as completed or to the right of the “closed out” weeks
 - This would result in 100% score for all periodic checks
- > Focus on PMS metrics should be on:
 - *PMS accomplishment meeting scheduling requirements*
 - *Administration of PMS schedules/documents*
 - *Ensuring that situational maintenance is being accomplished*



PMS Accomplishment Rating (PAR)

- > A proposed new formula for determining periodicity-based accomplishment is based on the number of weeks that the MRC is “in” periodicity versus being “out” of periodicity over the specified timeframe
- > This approach allows the PAR rating to measure what percentage of the MRCs were being done “on time” within the evaluation period and not on how many checks were performed
- > Situational checks need to be tracked separately from periodic checks, due to business rule differences.
- > Periodic checks with a situational component are tracked through both periodic and situational ratings
- > Neither the new system, nor the legacy RAR system, can accurately tell you whether or not all maintenance is being performed on the every piece of equipment (not all MRCs or equipment are on the schedule) or that every situational check has been properly added to the schedules.



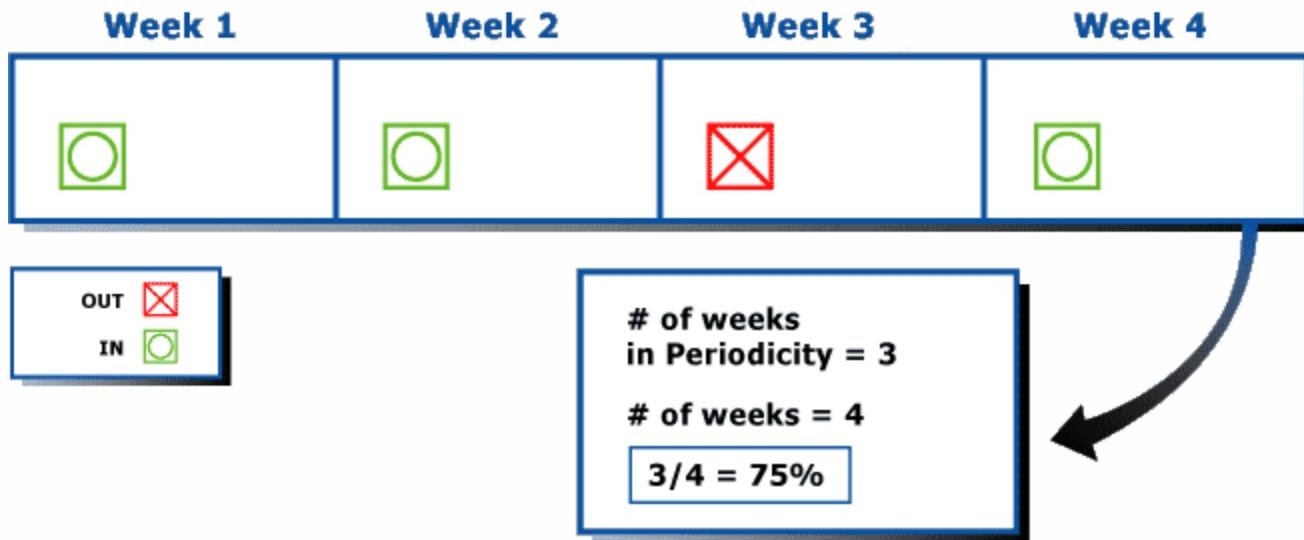
PMS Accomplishment Rating (PAR)

- > Report that is broken into three categories:
 - *Periodic Maintenance*
 - *Situational Maintenance*
 - *PMS Administration*
- > The new periodic accomplishment rating is based on number of weeks an MRC is in/out-of-periodicity
 - *Current RAR system is based on number of times scheduled versus number of times complete (which can become inflated)*
 - *The “Weekly Closeout” feature allows us to know the number of weeks an MRC is out-of-periodicity*
- > Rating is based on the number of MRCs that are in periodicity, rather than the number of checks that were on the schedule
- > System also allows all periodic maintenance (Weekly or greater) to be tracked (since weeks, not days, are closed-out)
- > Each MRC is calculated individually and the scores are “rolled up” into periodicity types or situational codes

SKED 3.2

PMS Accomplishment Rating

PMS ACCOMPLISHMENT RATING



SKED 3.2

PMS Accomplishment Rating

PMS ACCOMPLISHMENT RATING

	Week 1	Week 2	Week 3	Week 4
A-1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
M-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M-2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
M-5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



of weeks
in Periodicity = 12
of weeks = 16
 $12/16 = 75\%$

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PMS Accomplishment Rating

PERIODICITY PAR

Workcenter: RP01
Start Date: 4/4/2005
End Date: 7/1/2005
of Weeks: 13

Periodicity	# of MRCs	Total # of Maintenance Weeks	# of PMS Alerts*	PAR Score
24M	2	26	0	100.00%
18M	3	39	0	100.00%
A	7	91	1	98.90%
S	6	78	1	98.72%
Q	14	182	4	97.80%
M	25	325	5	98.46%
W	22	286	26	90.91%
TOTALS	79	1027	37	96.40%

* Each PMS Alert represents one week that an MRC was out of periodicity

Situational PAR

- > The situational formula cannot be the same as the periodic formula (out-of-periodicity does not fit)
- > The formula uses the number of situational checks that have been added to the schedule versus the number of situational checks that were completed
- > Situational checks that have been added to the schedules cannot be manually removed from the schedules
 - *Situational checks can be marked as “not applicable” because the situation in this case did not apply due to prerequisites and/or scheduling notes*
 - *Situational checks can also be marked as “not completed”. This is the only “lost” check in the new scheduling system.*
- > Situational PAR report is broken down by the situational event that caused the check to be scheduled.
 - *Manually added situational checks are tracked separately*
 - *When situational events are changed or “un-triggered” the related checks are removed from the schedules (cannot manually remove however)*

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PMS Accomplishment Rating

SITUATIONAL PAR

Workcenter: RP01
Start Date: 4/4/2005
End Date: 7/1/2005
of Weeks: 13

Situational Requirement	Scope	Situation Type	Checks	Completions	Situation Not Applicable	Not Accomp.	PAR Score
Manually Added/Other	N/A	N/A	13	13	-	-	100.00%
At Sea	Global	State	25	22	-	3	88.00%
In Port	Global	State	-	-	-	-	100.00%
Getting Underway	Global	Trigger	3	2	1	-	100.00%
Rough Seas	Global	Trigger	6	4	-	2	66.67%
Each Use	Local	Trigger	37	37	-	-	100.00%
Lay-up	Local	Trigger	9	9	-	-	100.00%
Start-up	Local	Trigger	3	3	-	-	100.00%
TOTALS			96	90	1	5	94.74%



SKED Administration Report

- > Designed to inform of the current state of a workcenter's PMS administration
- > Administration areas include:
 - *Weekly close-out status*
 - *Signing Technical Feedback Reports (TFBRs)*
 - *Acknowledging PMS Alerts*
 - *Approving MRC line-outs (Review-and-omit)*

PMS Confidence Rating

- > Needs to be based on the spot check system, where “spot checks” are defined as confirming that the PMS is being performed correctly
- > Results of these spot checks will be tied to PMS checks, however additional information (spot check date, etc) can be stored as well
- > The confidence rating will be determined by the pass/fail rate of the spot checks over a given duration of time



PMS Performance Metrics

Change Summary

- > Due to the changes to the schedules and PMS scheduling rules, the legacy RAR, ACF, and PPR reports are no longer viable
- > The new metrics system is based on whether or not an MRC is in/out-of-periodicity rather than the number of times it is scheduled/accomplished
- > Administrative ratings (data) will be provided to ensure that the administration of the PMS schedules is done in a timely fashion
- > PMS Confidence Rating will be based on the spot check business rules (TBD)



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3.2

Greater Spot Check Support



Spot Check Support

- > SKED will provide a documentation tool for capturing the results of spot checks
- > The term “Spot Check” from a SKED perspective is defined as a test to determine if the PMS is being performed correctly (as opposed to a documentation/administrative review or test-the-tester review)
- > The results of the spot check will be stored with the PMS check that was reviewed.
- > Additional spot check data will be stored:
 - *Date the Spot Check occurred*
 - *Who performed the spot check*
 - *Results of the spot check*
 - *Comments or remarks by the inspector*



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3.2

Reduced Manning Functionality
(LCS support)

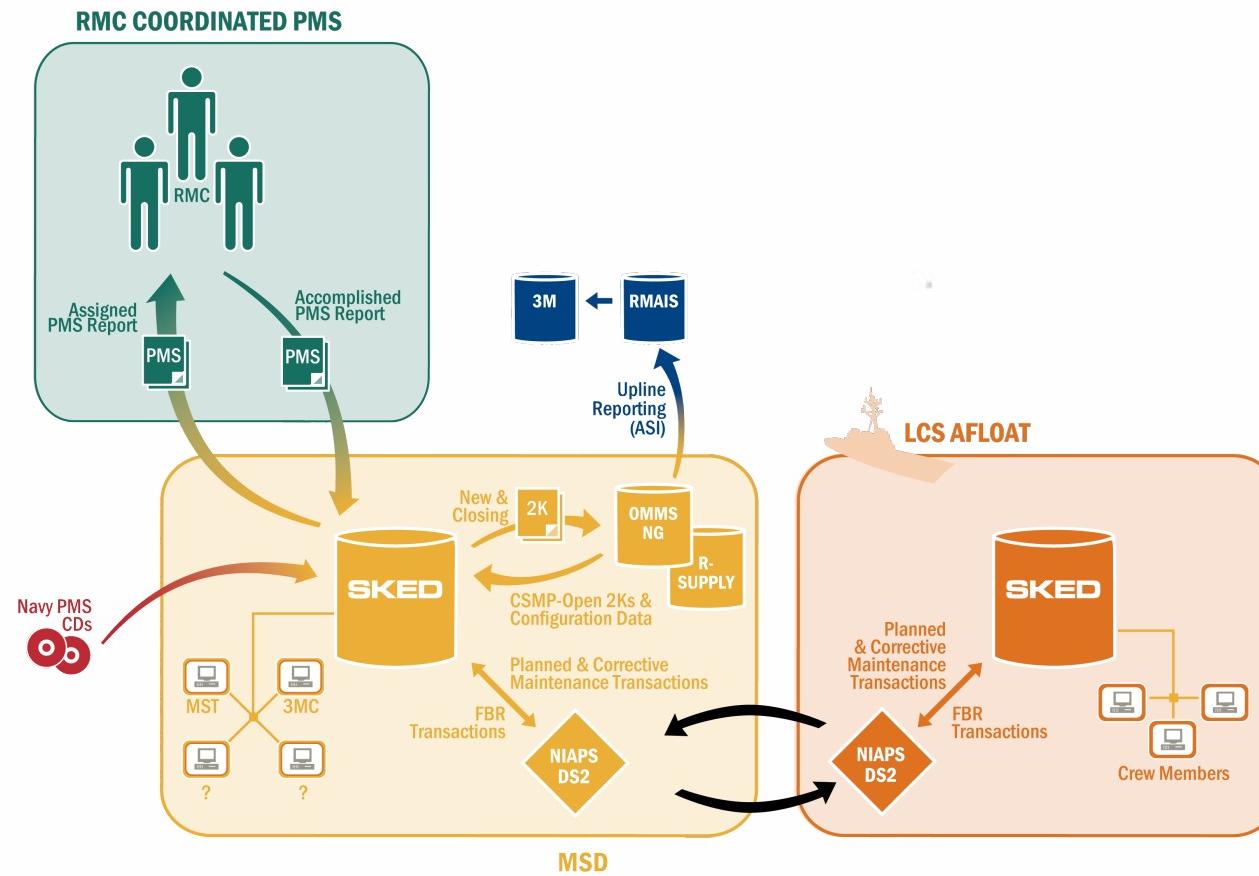


SKED 3.2 Functionality for LCS

- > Distributed processing
 - *Master schedules ashore*
 - *Communication from ship-shore via Distance Support*
 - *Transaction based processing (smaller data set)*
- > Corrective maintenance processing
 - *Deficiency Notifications vs. 2K from ship*
 - *Maintenance actions “scheduled” from shore for ship accomplishment*

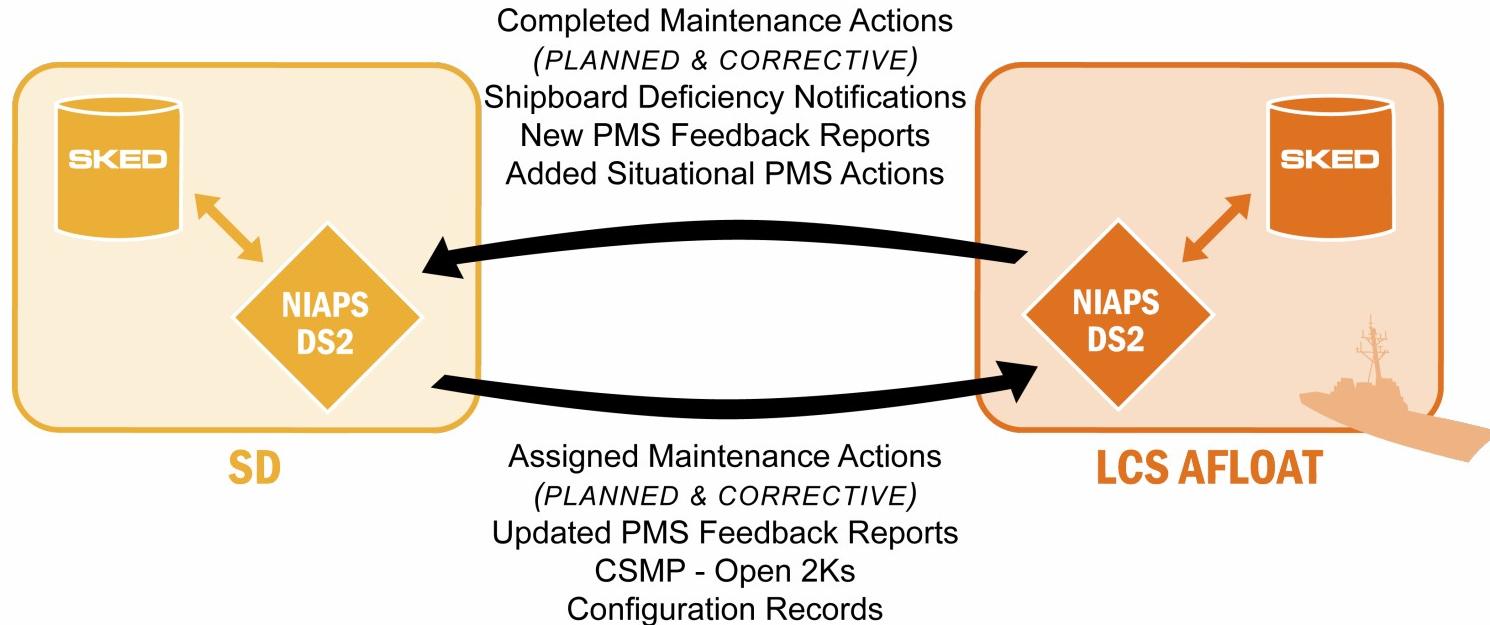
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LCS-specific SKED Functionality



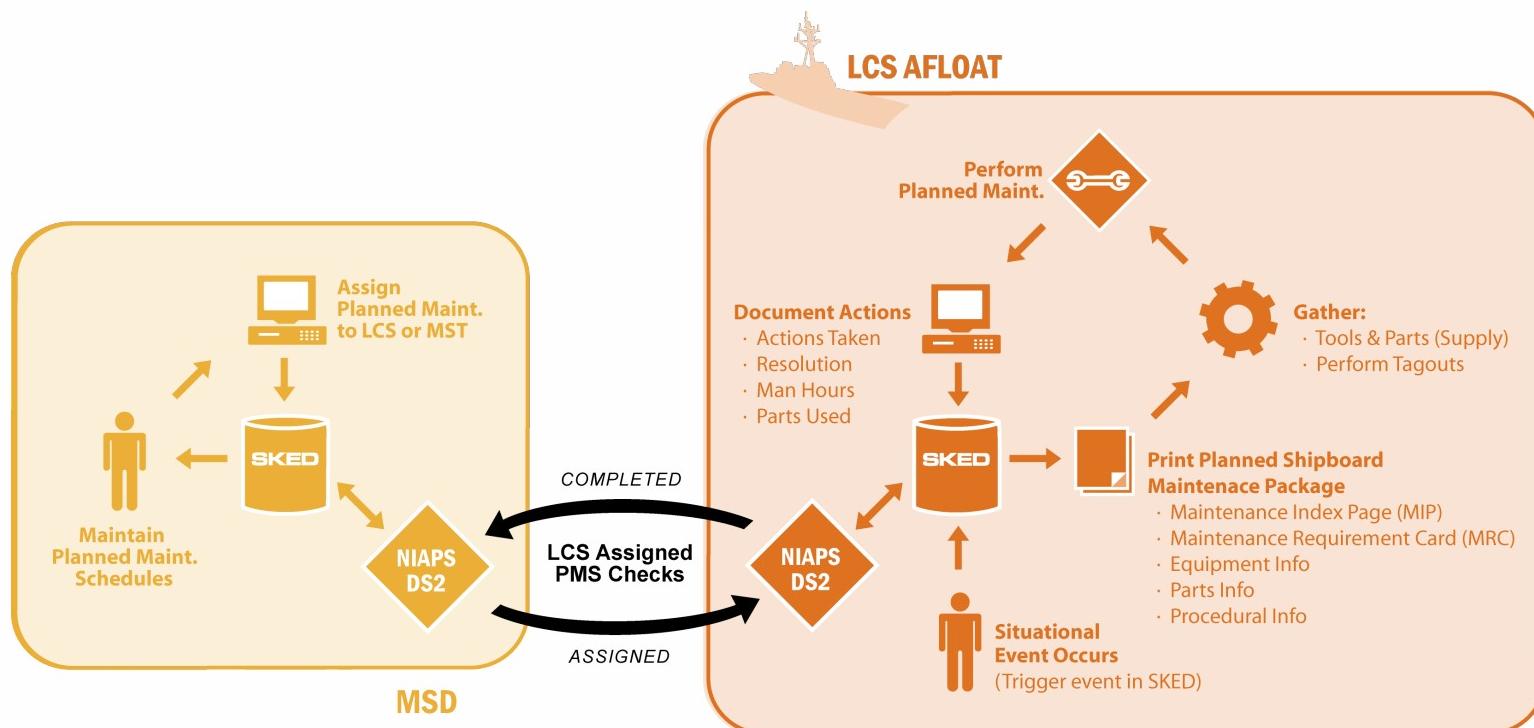
SKED 3.2

SKED 3.2 Communications for LCS



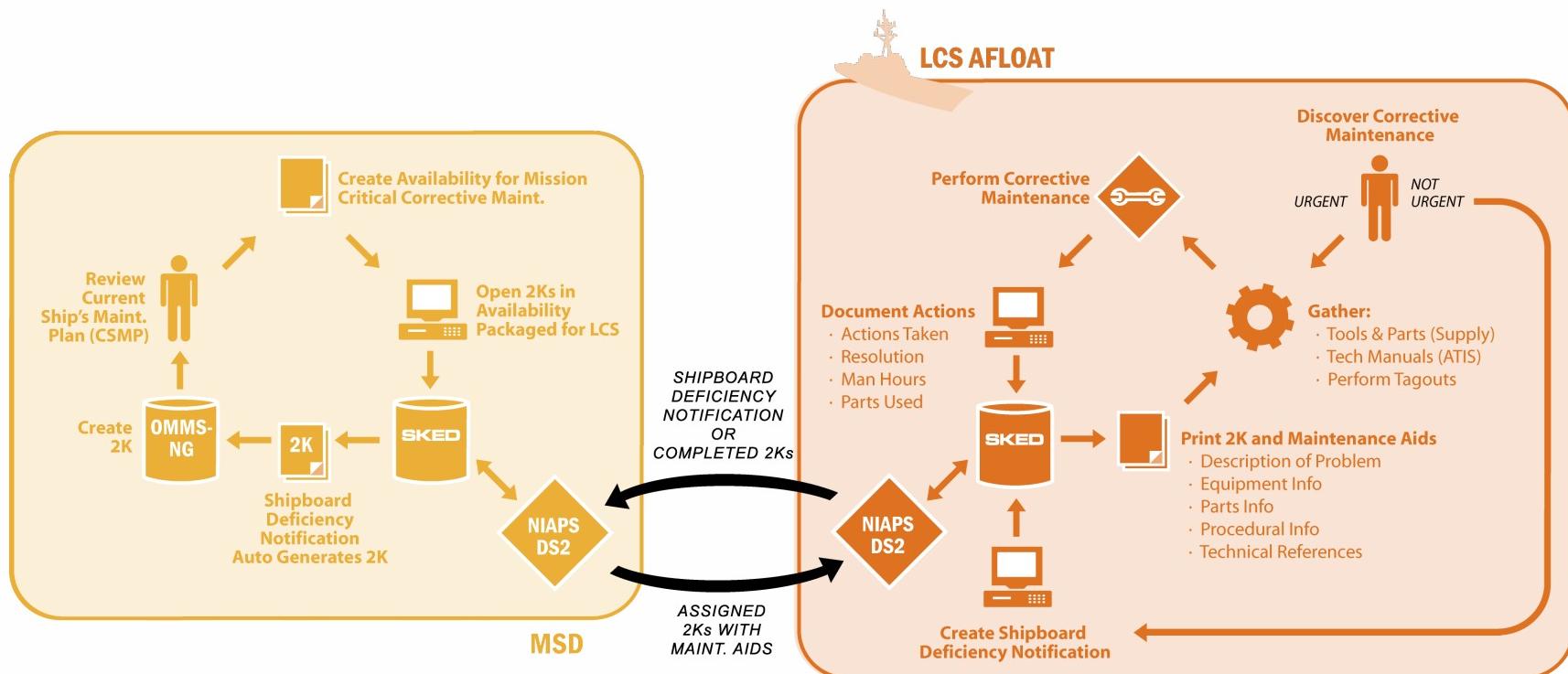
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LCS Planned Maintenance Workflow



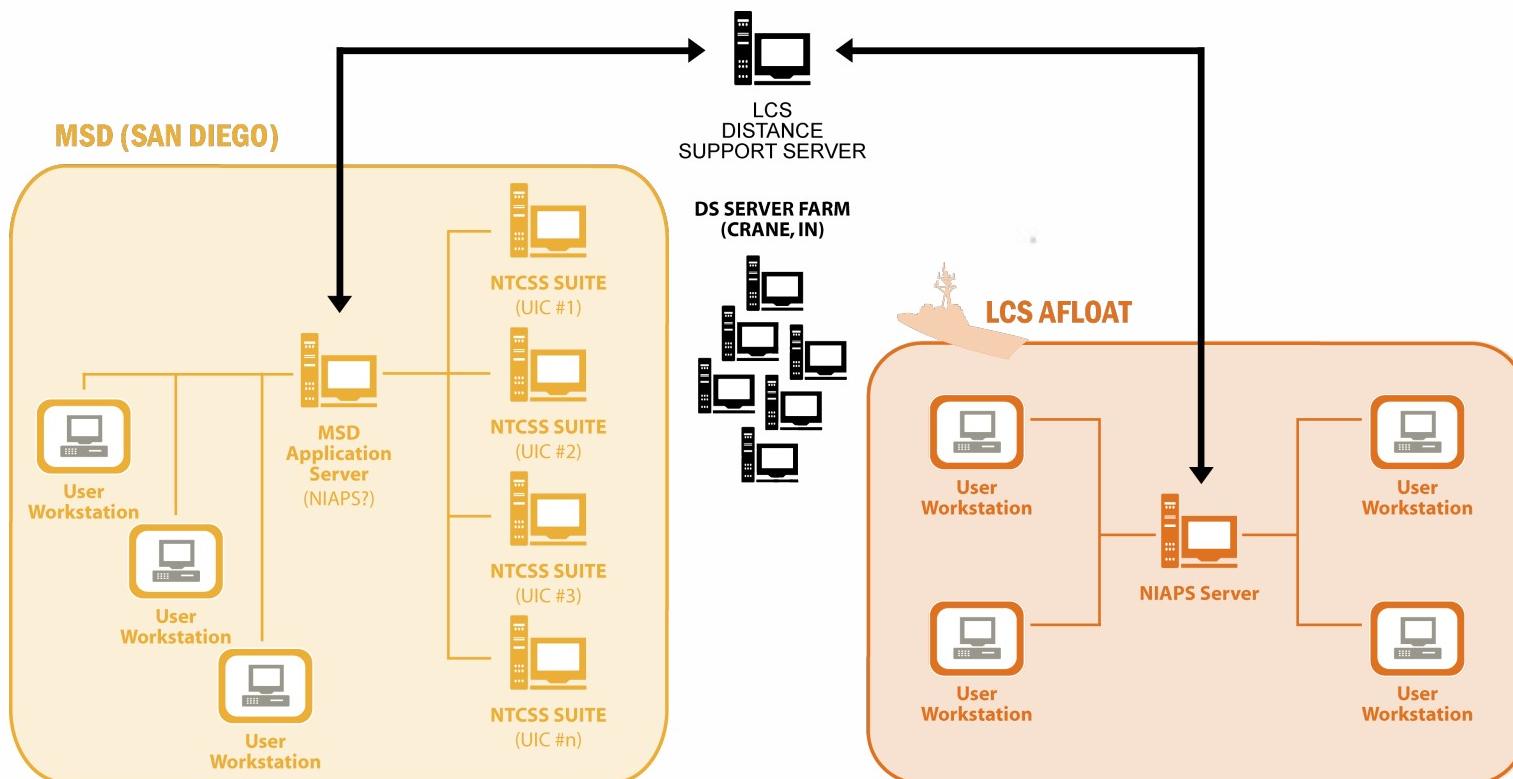
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LCS Corrective Maintenance Workflow



SKED 3.2

LCS Hardware Requirements



Corrective Shipboard Deficiency Notification

Shipboard Deficiency Notification Form

Ship RIN	CDM RIN	
000961	002FV	
Nomenclature	Serial Number	
VALVE, PRESSURE GAGE GA007 T	NONE	
Location	When Discovered	
0.5-28-0-Q	6 - During PMS	
Cause Code	Equipment Status	
7 - Normal wear and tear	2 - Non-operational	
Description		
The gage is broken.		
<input type="button" value="Find Equipment"/>	<input type="button" value="OK"/>	<input type="button" value="Cancel"/>

Conclusions

- > Major changes are in the works for the PMS system in order to better meet the needs of the Navy as a whole
- > The 4790 and JFMM need to be updated to reflect these changes
- > There will be a period of overlap between the new systems and the legacy systems, and both systems need to be described in the documentation
- > Training, documentation, and education will be the key to a successful deployment
- > The new system will provide a new toolset for administrators to monitor and evaluate the current state of PMS on board ship and in the fleet.